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Wildlife and Related Natural Resources

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COVER: Muskrat, by Bill Bunce
Arlington, Virginia

Editorial

ANIMAL IMPRESSIONS

Rudolph and Santa's Reindeer are symbolic of the Christmas season, as are cardinals and holly berries, doves and yule logs. Actually, our knowledge of and feelings toward animals are tied up with symbolism and folk lore to a greater extent than most people realize.

After he learns "Mommy" and "Daddy," a developing child's next exercise is usually to learn to recognize the animals and the sounds they make. A child's world abounds with animals in the form of cuddly toys, rattles, squawking toys, on building blocks and in books. Animals are liberally represented on most nursery walls.

Folk lore from that of the ancient Greeks to that of the American Indians is heavily laced with animal personalities, real or imagined. Our own fairy tales are a prime example of assigning human moral values to animals. We have the sly fox, the wicked wolf, the silly goose, the stupid pig, the wise owl, the belligerent billy goat, the stubborn mule, the crafty coyote and so on. When you stop and think about it, it is almost like brainwashing. Soon the toddler graduates to Saturday morning cartoons, then to Disney's fairy stories star-

ring real animals and on to Grizzly Adam's fantasy world.

As teenagers, names like pig, baboon and turkey become popular colloquialisms, with lasting impressions on their animal world counterparts. When they get their first car, they will enter the world of cougars, jaguars, impalas, foxes, rabbits and on it goes.

The world's great religions draw heavily on presumed animal personalities to illustrate points and to draw analogies for human behavior. The Bible is full of animal anecdotes used to point up the weaknesses or strengths in human behavior.

With the entire world populace subjected to all this "unnatural history," it is a small wonder many persons develop weird and warped ideas about animals. Many urban residents who have no contact with real animals maintain these fantasies throughout life. They span both sides, from those who want to love all animals to death to those who have definite fear or hatred toward one or all species. The animals are not served well by either of these attitudes. Animals are rather simple creatures and can benefit far better from the truth than from these mythical attributes we choose to give them.—HLG

Letters

COON CONTROVERSY CONTINUES

I would like to congratulate you on the answer to Mr. Dehart's letter. I think it is very uncalled for for him to say "so why not put the blame where it is, on the trapper. . ."

Regan Underwood
Salem

Mr. Dehart, in other years when you could hunt coon for almost four months we didn't hear from you. This year you still get over three months and I, as a trapper, get two months. My license costs \$15.00 plus \$5.00 for small game—total, \$20.00. You get to hunt coon plus small game for \$5.00 plus four months to hunt coon.

Think it over.

Turner A. Bowen
Middletown

VENISON NO BARGAIN

In your August editorial you put the value of deer meat taken in Virginia at \$3,806,580.00 which may be true.

If an actual account was to be kept on the amount of damage done to farm crops

(corn, hay, soy beans, etc.) orchards, young trees and damage done to farm property by deer I do not believe the \$3,806,580.00 would pay it.

Also deer do considerable damage to vehicles on the highway.

Hunters, harvesting these deer, also do lots of damage to personal property. It is no way the deer meat that is harvested in the state of Virginia can pay what it costs to produce it. Look at the cost the Game Commission put on the state to operate last year—over \$6.5 million.

Nelson Wright
Williamsville

The Game Commission operated at no cost to the "State"; only to the sportsmen whose license fees and taxes support our entire operation.—Ed.

VW AROUND THE WORLD!

I am a faithful reader of *Virginia Wildlife* and wish to tell you how great your magazine is.

I live in New Delhi, India and this magazine is like a taste of home since I lived in Virginia for almost six years.

Why, I'll bet you don't have anyone else from halfway around the world reading your magazine except the people I have introduced to *Virginia Wildlife* since I've been here.

Thanks for a wonderful magazine and keep up the good work!

Lisa Munkres
New Delhi, India

ANOTHER VOICE FOR CHESTNUT!

About four years ago my husband and I had been back to Elkins, West Virginia. Starting back, we decided to explore a little. A very beautiful drive down a little valley brought us to Mathias, West Virginia.

A short distance from Mathias, the hard surfaced road disappeared. The dirt road was so narrow, when you looked out the window, one was looking straight down. That is how I happened to spot the wild chestnut tree! It had a few chestnut burrs on it about the size of an English walnut.

It would be so wonderful if the native chestnuts could be revived.

Mary Day Hutton
Mt. Jackson

GRAY SQUIRREL

Endangered Species Model



By JOHN P. PETTIS and CLEVE J. COWLES

Within the squirrel family there are presently two species native to North America which are threatened with extinction. These are the Delmarva Peninsula fox squirrel and the Everglades fox squirrel. The Delmarva Peninsula fox squirrel, threatened with immediate extinction, is found only in localities of Maryland and a small portion of Virginia. The Everglades fox squirrel has been reduced in abundance since the early 1900's and occurs only in restricted areas of the Big Cypress Swamp and adjacent pine-lands of southwestern Florida. In a society such as ours which is faced with many economic problems, it is often difficult to justify the expense of research on endangered species. However, the decline of such species usually indicates that environmental changes are adversely affecting their population stability and ecological balances. Many scientists and members of the general public believe that the widespread demise of wildlife such as these squirrels indicates that man's effect on his environment needs improved control, and, if such controls are not implemented soon enough, man may also suffer similar consequences. Thus, wildlife species can be considered indices of ecosystem stability and the more that we learn about endangered species, the more we may learn about minimizing undesirable ecological effects.

Obviously a very essential area of research would be to study the habitat requirements of endangered species and the factors affecting their habitats. This sort of research has been funded by government agencies and, consequently, much of it is being done for a variety of endangered species. However, at the same time we are faced with the problem that some species are reduced to such low numbers that their very survival may hang on limited disturbance of wild populations or even on artificial propagation in captivity. Scientists studying the problems of artificial maintenance of endangered species have the ultimate goal of returning these organisms to their native habitats once the ecological problems are resolved. Another possibility is that captive born individuals could be introduced to areas suitable for natural reproduction but which are yet to be discovered. Admittably these may be last ditch efforts, but research into artificial propagation of certain endangered species is justifiable on this basis. An example of a species propagated artificially and then reintroduced to the wild is that of the peregrine falcon. After patient work by researchers at Cornell University, a western subspecies of the bird has been propagated in captivity and successfully introduced in the eastern United States. An advantage of this method of managing endangered species is that once the propagation techniques are

perfected, survival of young may actually be better than that which normally occurs in the wild!

Researchers of the Department of Fisheries and Wildlife at Virginia Polytechnic Institute and State University have been studying the potential of a similar approach which may one day be needed for the squirrels mentioned above. However, instead of actually studying the endangered animals, the abundant gray squirrel has proven to be an ideal research model. Gray squirrels are noted for extreme sensitivity to captivity, particularly if removed directly from the wild, and it is likely that the two threatened species would respond similarly. One of the ways in which the gray squirrel's sensitivity to captivity is demonstrated is by a complete cessation of breeding unless kept in large outdoor enclosures. However, a large outdoor enclosure may not be a feasible way of maintaining threatened species. If a greater degree of confinement would be required, it may be necessary to induce reproduction in these animals by administration of exogenous reproductive hormones that have been obtained from other mammals. Recent studies at Virginia Tech have shown that captive female gray squirrels will respond to injection of hormones obtained from cattle and humans. Although it has been shown that ovulation can be induced in this fashion, the techniques are in need of much additional refinement before it is likely that artificial insemination or mating would be successful.

Another approach may also prove fruitful. We have found that captive-born animals will breed in small pens after a period of several years during which they mature and adjust to captivity.

At present at V.P.I. and S.U., a population of about forty gray squirrels is being maintained in captivity. Each animal is retained in a 10' by 10' by 10' outdoor pen equipped with a nest box. In the past two years, we have become guardians to ten captive bred and born squirrels. The parents of these youngsters were the offspring of pregnant females captured in the wild. Unlike the wild-trapped squirrels, these adults seem better able to cope with the stresses of captivity and will occasionally breed. We attempted to tame six of the animals born in captivity by hand raising to facilitate further studies into the nutritional and social-psychological aspects of reproduction in captive squirrels. These studies may provide further insight into the physiological requirements of wild populations as well.

Although confronted by many problems and questions regarding future applications, an improved capability to breed squirrels in captivity could help to preserve endangered squirrel species while simultaneously leading scientists to techniques applicable to other endangered mammals. The common gray squirrel is helping to lead the way.

MUSKY MADNESS

By CHARLES D. BAYS

I was first smitten with that mysterious malady - sometimes known as Musky Madness - almost a decade ago. This irrepressible desire to spend countless, and most often fruitless, hours in quest of an arrogant and uncooperative foe all started at a highly unlikely time of year. Actually, had it not been for an audacious friend with an insatiable thirst for cruel and inhumane punishment, I'm sure I would never have contracted the dread syndrome.

It began on a cold February night. A snow that had fallen a week before seemed determined to linger. My phone rang and it was an old friend about whom many have expressed serious doubts as to his sanity. The friend, a native of Springfield, was talking excitedly: "Did you hear about the muskies in the James? Muskies are hitting in the James! I know that river like the palm of my hand! Are you ready to go?"

Well, I think of myself as a dedicated sportsman, but the prospect of sitting in a boat in 20-degree weather does not appeal to me greatly. After further discussion I relent, and plans are made to start the following day at first light.

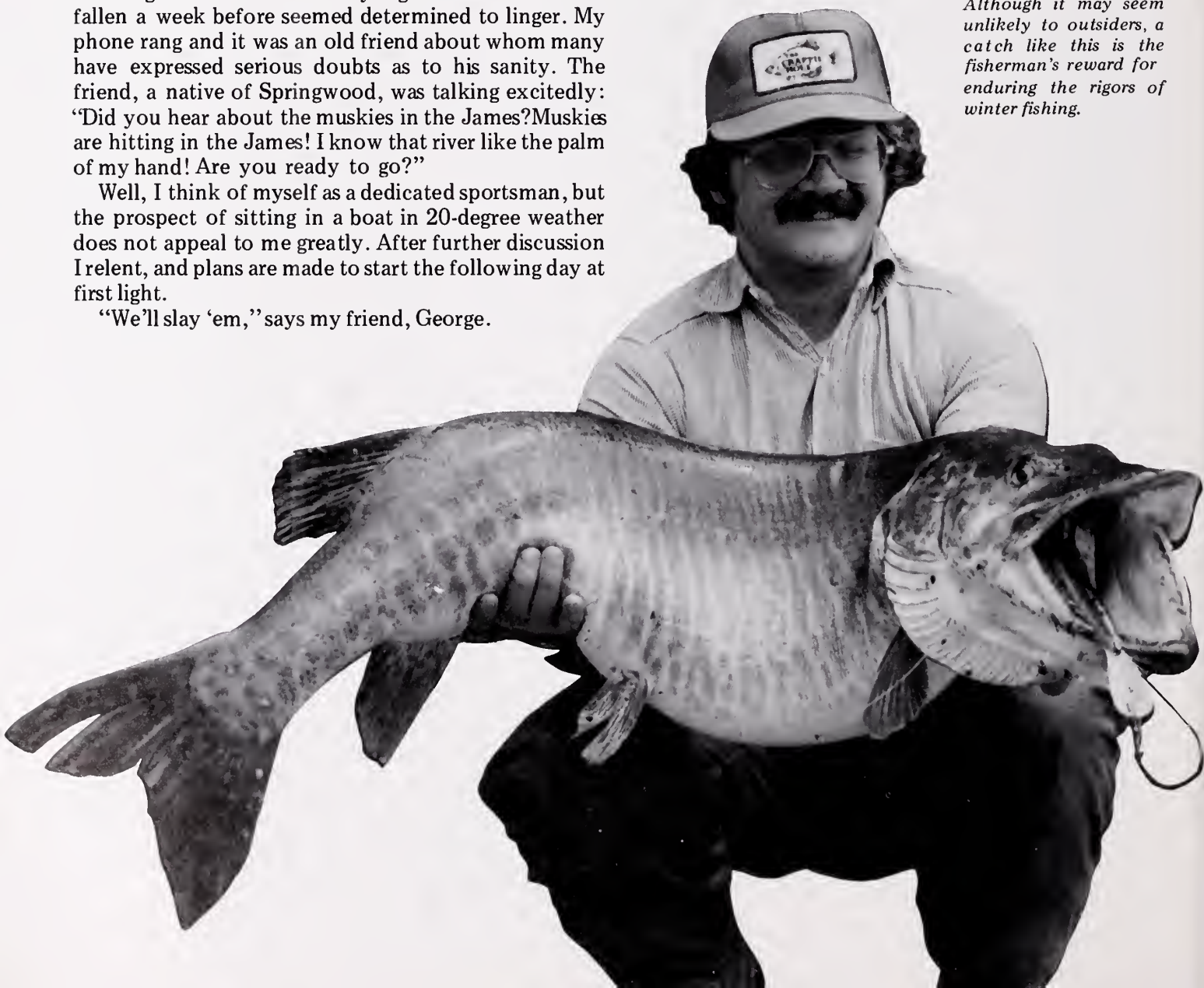
"We'll slay 'em," says my friend, George.

Morning breaks, and George and I launch the 16-foot boat at a convenient spot just north of Buchanan. The weather is miserable. I try to bury deeper into my heavy coat as we motor upstream. The James is four feet above normal and our craft moves steadfastly, with no interference from underwater obstructions. Our plan is to go north of Rivers Bend Camp, where the muskies were to have been caught, and plug downstream.

I am grateful that we have reached our predetermined destination. At least now that the boat has stopped, the bone-chilling breeze caused by the movement has also ceased. With high hopes and half-frozen fingers, George and I tie on 7½-inch Rebels. According to my optimistic friend's information, this is *the* lure. I take his word for it, as I know little of Esox Masquinongy. Heck, I've never even seen a musky!

The first cast produces nothing but ice in the guides. Periodically, it becomes necessary to dip the rod in the river to melt the stuff. Casting becomes a thing that

Although it may seem unlikely to outsiders, a catch like this is the fisherman's reward for enduring the rigors of winter fishing.



requires much effort. The wind starts to howl and I'm sure it's getting colder.

We have now floated to a decrepit bridge overlooking the river.

"This hole on the right will be full of 'em," says George. "When I was a kid I'd catch fish out of here until I had all I could tote."

Fish sure, I think to myself, but muskies?

I suppose that George is either trying to keep my spirits up or his, or maybe both. It is starting to spit snow.

This hole produces nothing but more ice in the guides, and occasional trash on our 7½-inch Rebels. We stop and wolf down bologna sandwiches and lukewarm coffee.

"Those muskies will be stacked up like cordwood in the flat section at Rivers Bend," says my optimistic friend.

I'm beginning to wonder what I'm doing here. I could be out with my bird dogs. Moving, generating heat, stopping only when old Sam and Lady freeze on point. This section of the river offers no encouragement.

We are now at another bridge spanning the James. Traffic is heavy over our heads as cars zoom past on Interstate 81. It may be that the cold weather is affecting my vision, but I believe I can see people in the vehicles laughing at the two yokels in the aluminum boat on a partially frozen river.

More casts prove fruitless. It is getting late. We have nothing to show for our efforts but blue hands and runny noses. We drift further downstream.

On our right is some beautiful blue-green water flowing into the somewhat murky looking James. "That's Looney Creek," says George, "let's give that a try."

"Let's troll up," I reply. My arm is weak from casting, and I am not very optimistic about catching a musky anyway.

George lets out line, and I idle the 9.8 Mercury down as low as possible. The 7½-inch Rebel vibrates the rod with enticing action. We have gone 30 feet and my friend yells loudly.

"I've got him on!" George screams.

I kill the motor but silently wonder if it's a fish or a hidden underwater object too large to reel in. We are in shallow water. The end of George's rod bends deeply and the line streaks past the bow of the boat. It is a fish! George is chewing on his lower lip, and a deadly, intent look is upon his face.

"Don't horse him," I coach. I try to appear calm, but my heart is trying to find some escape from its present position.

George's expression has now changed from intensity to desperation. The fish, as yet unseen, has snagged bottom. I follow the line into the frigid water as deeply as my arm will allow. I feel a root. Hopefully, this is the object in which the fish is entangled. I pull with all the

strength I can muster, the root breaks, and the fish moves out. George still has him hooked. After a brief battle, I have him in the net. It is a musky! This handsome, fierce, toothy, war-like, beautiful, finny creature is safe in the boat.

We have now drifted to the confluence of Looney Creek and the river, and it is my turn to try for old Esoc. I hold the rod in my right hand and idle up the creek steering with my left. We have gone only a few yards when the rod is nearly stripped from my partially frozen hand! A musky is on! I'm being rewarded for this day of supreme punishment from the elements. I put forth all my efforts and skills to wear down the toothy monster. I do an adequate job and the fish is alongside the boat. My anxious friend dips the net in the frigid water, but in doing so bumps the line causing slack between this point and the green fish's mouth. The Rebel becomes dislodged from his bony mouth, and Esoc fins lazily out of sight into the greenish water.

I have a sickening feeling in the pit of my stomach. I feel anger toward my friend. I feel like crying. I again feel the cold.

We drift to the mouth of the creek in utter silence. It is getting dark. I fire up the Merc and start the last troll of the day with dismal hopes. Wham! The rod bows under the strain of another fish. This is more than anyone should expect. Experts have said it takes 100 hours of angling to get a strike from a musky. Three small trips up the creek have provided three successive strikes! The nine punishing hours preceding these last few moments are forgotten. I tire the fish and this time my friend successfully nets him.

It is getting very late. We carefully make our way downstream to our vehicle in the darkness. Somehow, I am now radiantly warm.

Ten fleeting years have passed. Muskies the size George and I landed (both considerably under 10 pounds) no longer rate as newsmakers or receive the lavish publicity which was bestowed upon the two willing recipients. Smith Mountain Lake is now the number one musky water in the state. Thirty-pound-plus muskies, as the one pictured here, are not all that uncommon.

But a keeper musky, regardless of size, is a true trophy and one to be relished. Land one, and join the elite. I do, however, feel obligated to issue a cautionary statement: In doing so, there is an outstanding chance of contracting the highly infectious Musky Madness. And to date there is no known cure for the mysterious malady (although extensive research is being conducted by musky angler's wives).

While research continues, the afflicted musky angler can take consolation in the fact that at least there is a prescription that aids and assists in controlling the dread syndrome - liberal doses of angling hours have proven to be highly effective. Unfortunately, this treatment provides only temporary relief.

By GARVEY WINEGAR

Something strange has been going on in the Atlantic Ocean off Virginia Beach. U.S. Navy demolition crews have been deliberately sinking ships. And barges loaded with thousands of discarded auto tires have been dumping their cargoes into the blue Atlantic.

Strangest of all, the whole affair is supposed to improve fishing.

The Virginia Marine Resources Commission of Newport News is in charge of building a series of artificial reefs off the Virginia coast. Similar reefs have been very successful for other states along the Eastern seaboard. Now Virginia is getting in the business too.

The idea behind it all is simple, according to Mike Meier, fisheries reef manager for the Virginia Marine Resources Commission.

Fish like a place to hide. Not only does a reef give small fish a sanctuary where they can get away from something trying to eat them, but large fish can use the reef to lie in wait and pounce on anything edible that wanders by.

Add one other factor. A reef, whether artificial or natural, attracts crustaceans and that includes lobster, shrimp, crabs, barnacles, wood lice and other creepy, crawly, swimmy things that only a marine biologist could love.

What do you have? You have a veritable underwater dinner table where one form of marine life attracts another, where flounder and sea bass and tautog take up residence because the rent is low and the living is easy.

Let a fishing boat drift over the reef with a number of lines dangling squid, shrimp or minnows, and chances are good that anglers will begin to whoop and pull in fish.

"A lot of the Atlantic Ocean off the Virginia coast has a shifty bottom, which means it doesn't have a good natural reef," says Mike. "So, we're building artificial reefs. They attract a rich diversity of fish."

Virginia's reef system is being built with two things: old Liberty ships and piles of discarded auto tires.

So far, the reefs are made up of six Liberty ships and a growing mountain of tires.

Unfortunately, the tires are easier to get to than the Liberty ships.

The tire reef is being built at Chesapeake Light Tower in the mouth of the Chesapeake Bay, just 10 miles off Virginia Beach.

Four of the six ships, on the other hand, lie on the ocean floor some 30 miles off the coast. Only the larger fishing boats will have the power and speed to make a run that far offshore for a day's fishing. Two



Art Conners detonates the charge that sunk the Edgar Clark.

other ships have been sunk off Wachapreague on Virginia's Eastern Shore, and aren't so far out.

All the artificial reefs will be marked on new charts.

"We hope to bale and transport 50,000 tires to Tower Reef this year," says Mike. "The site is located immediately southwest of Chesapeake Light Station. No completion date has been set, because the site is capable of accepting many thousands of tires and it'll be a big reef, nearly a quarter mile wide and nearly half a mile long."

There's no question about it, though: The spectacular part of the artificial reef program is the sinking of the World War II surplus Liberty ships.

Earlier this year, I went along when Mike and his crew sank the Liberty ship Edgar Clark in an area known as the Triangle Wrecks about 30 miles out in the ocean off Virginia Beach.

The Edgar Clark, a 440-foot ship that had somehow avoided the deadly German submarine packs of World War II, was taken from the mothball fleet and tied up in the James River since the 40's.

Its superstructure had been cut to second deck level, all deck gear had been removed, and the insides

FISH & SHIPS:

A TREAT FOR THE SALTWATER ANGLER

of the old ship flushed with chemicals and water to guard against pollution.

Someone said it looked like a rusty old bathtub being towed to the open sea by a tug, and that was an apt description.

The U.S. Navy's Harbor Clearance Unit II, a group of demolition experts from Little Creek Amphibious Base, had the day before packed the insides of the Clark with 600 pounds of C-4 plastic explosives and 10 bangalore torpedoes.

"Don't worry, it'll make quite a show when it blows," said one of the Navy men. And indeed it did.

After the ship had been pulled into line with three ships already sunk, the anchor was dropped for a last time.

Aboard the command boat Sea Sport 1,000 feet away, explosives expert Art Conners twisted the handle of a detonating box, and the Clark practically jumped out of the sea.

The sides of the Clark actually bulged with the blast. Orange fire and gray smoke shot skyward, and those on the Sea Sport felt a blow from the concussion. Shrapnel splashed in the ocean.

The stern of the ship settled in the ocean, the bow began to point higher and higher as if making a futile attempt to stay above the lap of the waves. But the venerable Clark, its bottom ripped to shreds, lost the battle and sank out of sight just four minutes and 20 seconds after the explosion.

It rests today in 115 feet of water, and if things are going as planned, tiny organisms already are attaching themselves to the old hull. Perhaps a few tautog and sea bass have moved into the dark chambers of the ship's ruptured belly. That's the sequence of events off North Carolina and other places where ships and tires (and sometimes automobile bodies) have been sunk to form artificial fishing reefs.

The ships are expected to last 100 to 150 years, says Mike. And the tires? No one knows.

"They will last indefinitely," he says.

If Mike had his way, the ships would have gone down closer to shore. Thirty miles out means a two or three-hour run, even for the faster boats. For a small outboard, say with a man and his family, the trip is out of the question.

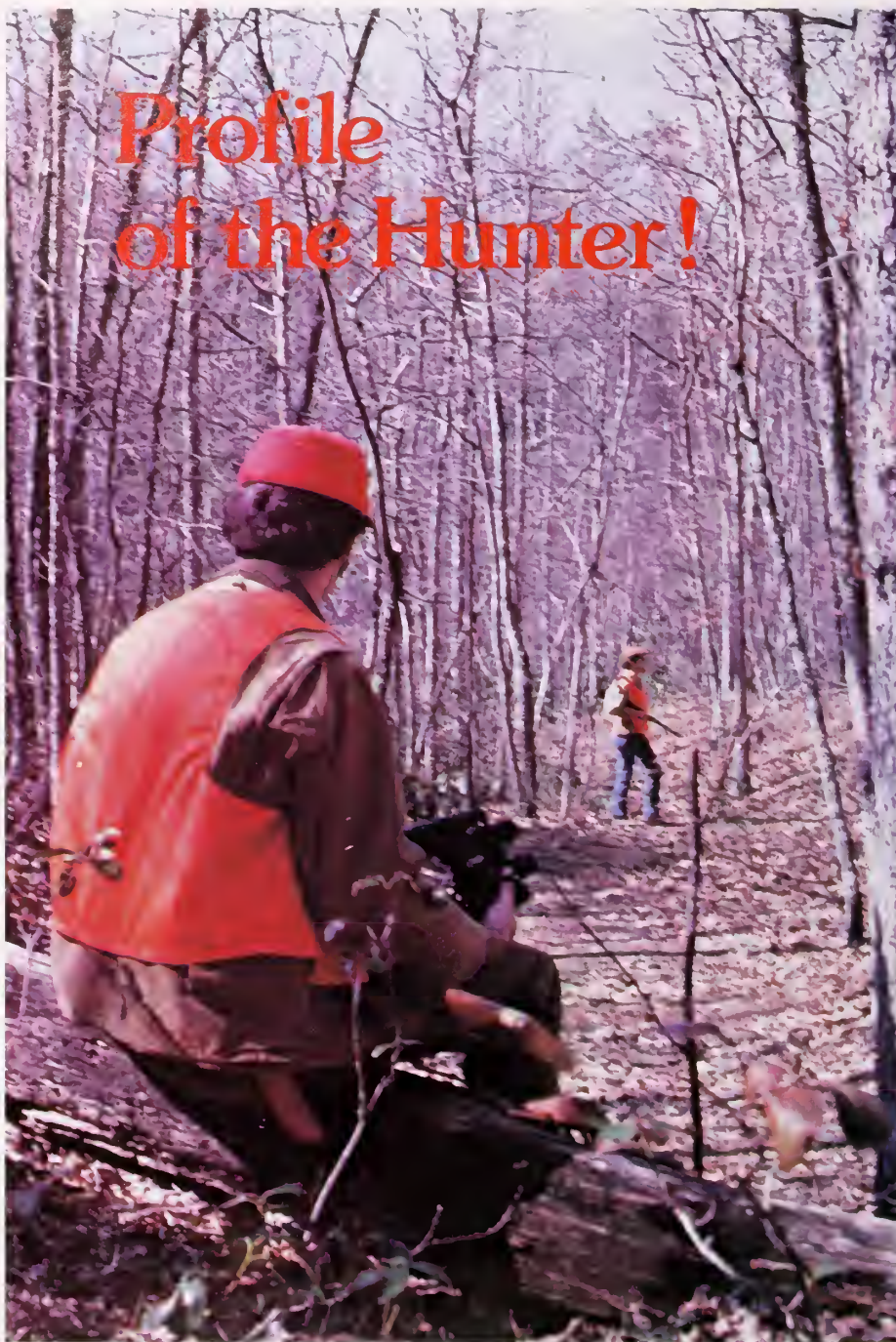
But he ran into opposition when he tried to build the artificial reefs closer to the Virginia coastline.



The sinking of the Edgar Clark.



Profile of the Hunter!



By KIRK H. BEATTIE
and THOMAS A. PIERSON

Virginia's resident hunters—at least those subscribing to *Virginia Wildlife* at any rate—appear to get a lot of different kinds of enjoyment from their sport according to the results of the hunter satisfactions survey begun in the magazine's last August issue. That survey drew a total of 1,047 usable responses from resident hunter-subscribers and most indicated that just "being close to nature" was the best part of their experience.

Several qualifications should be made before a discussion of the survey itself is begun. Resident hunters subscribing to *Virginia Wildlife* may not be typical of other Virginia resident hunters. Therefore, findings reported herein should not be generalized to the population of resident Virginia hunters. Also, too small a number of questionnaires were received from some of the hunter groups (such as bobcat, bear, and fox hunters) and responses from these groups are not discussed. Approximately 57 hunters checked two or more categories for the animal they most enjoy hunting and responses from this group are not reported.

Questionnaire responses will be reported for the following hunter groups (the number beside each category signifies the number of individ-

Text continued page 12.

OUTGROUP VISUAL CONTACT

Outgroup visual contact consists of seeing hunters from other parties. This dimension received an average score of 2.56, about half-way between "neither adds nor detracts" and "moderately detracts." It is interesting to note that outgroup visual contact received a lower average rating relative to verbal contact. Visual contact may occur primarily while hunting, whereas verbal contact may occur primarily around the camping area.

RESULTS OF THE VIRGINIA WILDLIFE HUNTER SATISFACTION SURVEY

ESCAPISM (near right)

Escapism included "getting away from everyday problems, getting away from civilization, getting away from home, and seeing very few other people while hunting". There was very little difference among hunter groups in their evaluation of escapism. The average value of importance attached to escapism for all hunter groups combined was 4.41. Thus, the average respondent indicated that escapism was approximately half-way between "highly adds" and "moderately adds".

SHOOTING (Far Right)

The shooting dimension of hunting satisfaction included "shooting my gun, at least getting some shots, seeing game fall as I shoot, and making a difficult shot". Shooting received an average rating of 4.11, close to "moderately adds". Other writers have suggested that a big game hunter may be satisfied with only a few shots per season whereas a game bird hunter may require many shots per season. Responses from various groups on the shooting dimension appear to support this statement.



EQUIPMENT (Above)

The equipment dimension included "being a well-equipped hunter, having the best of hunting equipment, comparing equipment with other hunters', and collecting guns". Responses to the equipment dimension were distributed similar to those of vicariousness. Equipment is, of course, a necessary part of hunting, but for many hunters it is not relatively important to have the best of hunting equipment or to be well-equipped.



SKILL (Above)

The dimension labeled skill included such activities as outsmarting game, stalking game, being thought of as a skilled hunter, bagging more game than hunters in other parties, teaching someone else the skills of hunting, and making a difficult shot. Skill received an average rating of 4.37 for all hunter groups combined. This rating indicates that the average hunter perceives the dimension of skill as lying closer to "moderately adds" than to "highly adds".





OUTGROUP VERBAL CONTACT

Outgroup verbal contact is a fancy name for talking with hunters in other parties. This dimension received an average rating for all hunter groups combined of 3.02. This value indicates that, on the average, verbal contact with hunters from other parties tends to neither add nor detract from total hunt enjoyment. However, there was a diversity of attitudes toward outgroup verbal contact. The average value assigned ranged from a low of 2.72 for squirrel hunters to 3.29 for dove hunters.

Individuals from each group returning usable questionnaires): deer—419; squirrel—103; quail—94; turkey—83; waterfowl—78; rabbit—52; grouse—41; dove—35.

The bar graph indicated on this page shows the distribution of averages for dimensions of hunting satisfaction for all hunter groups combined. Nature received the highest averages for dimensions of hunting satisfaction for all hunter groups combined. Nature received the highest average rating with 88 percent of the hunters checking “highly adds” for this dimension. Outgroup verbal contact (that is, talking with hunters in other parties) and outgroup visual contact (seeing hunters in other parties) received the lowest ratings. As can be observed from the chart, the average respondent reported that outgroup verbal contact neither added to nor detracted from hunting while outgroup visual contact somewhat detracted from the hunting experience.

To help present information in an understandable format, response categories for each of the satisfaction

dimensions were assigned a numerical value. “Highly adds” received a score of five, “moderately adds” a score of four, “neither adds nor detracts” a value of three, “moderately detracts” a score of two, and “highly detracts” a value

of one. Thus, to compute an average score for a hunter group on each dimension, values associated with each response were totaled and the sum was divided by the number of individuals in the group.

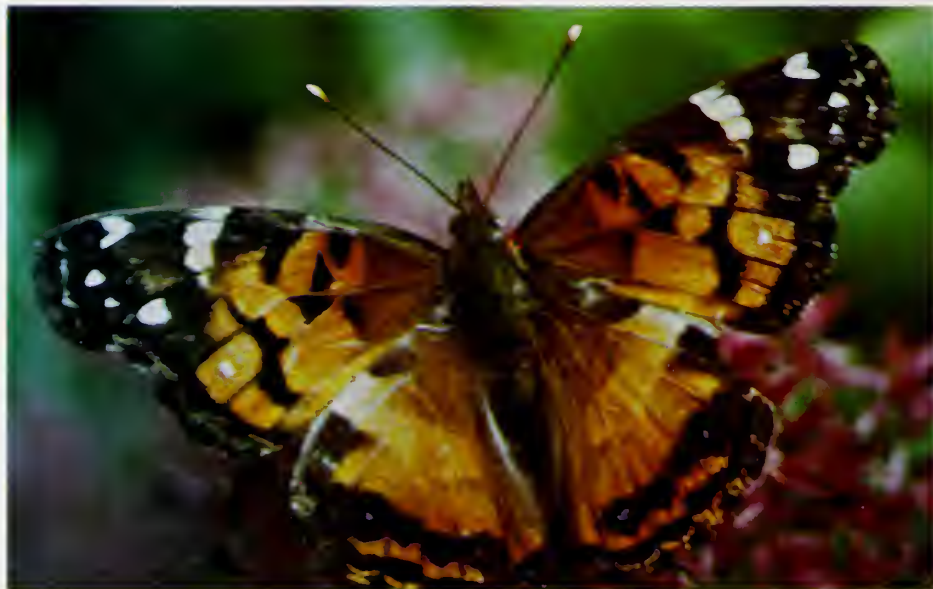
Conclusion on page 21

DIMENSION



NATURE

This dimension labeled nature included “being close to nature, just being outdoors, the smell and sound of the woods and fields, getting away from civilization, camping while hunting, and at least seeing some wildlife”. Average ratings for this dimension ranged from 4.77 for rabbit and quail hunters to 4.92 for grouse hunters. Thus, the majority of respondents indicated that the various aspects of nature highly added to the hunting experience.





By THOMAS A. PIERSON, KIRK BEATTIE and
HARRY GILLAM

A total of 1,468 usable questionnaires were returned and the results tabulated and analyzed. To avoid complicating the presentation of the results, let it suffice to say that the median value for each response category was used to interpret the results. Simply stated, the median is a number such that half the observations are less than the number and half the observations are larger than that number. For simplification, the response categories will be presented ranked from most to least preferred as indicated by your responses to the questionnaire.

In the overall ranking of subjects and readership preference, (Question 9), it is not surprising that Hunting Stories and Fishing Stories ranked as most preferred and next most preferred, respectively. It is encouraging to note that articles dealing with Wildlife Management ranked third among all subjects, perhaps pointing to the increasing role of state conservation magazines in disseminating information from the wildlife professional to the general public.

Among the category of Hunting and Fishing Stories (Question 1), How To Stories ranked as the most preferred followed closely by Where To Stories. Ranking lowest in this category was the subject Field Dressing and Recipes.

Boating articles (Question 2) ranked as the least preferred among all subjects. However, in the category of boating articles in general, Boat Fishing ranked as the most preferred subject material. Coinciding with the increase in canoeing in recent years, articles concerning canoeing ranked second as the next most preferred type of boating article subject.

YOU ASKED FOR IT !

Results of the VIRGINIA WILDLIFE READERSHIP PREFERENCE SURVEY

The type of article about Wilderness Adventure Articles (Question 3) most preferred by readers is Where To Go, followed by First Person Adventure Accounts and How To Stories. Note that Equipment articles ranked very low in this category, just as it did in Hunting and Fishing and Boating articles.

Articles about Environment and Political Issues (Question 4) that concern Habitat Loss are most preferred by readers. This is encouraging in view of the tremendous threat posed by habitat loss and destruction to all forms of wildlife. However, it is disappointing that articles dealing with Energy were least preferred by readers. One must hope that this preference is for reading material only and does not reflect the readership's attitude toward energy in general.

Readers are most interested in articles concerning Current Programs in Wildlife Management (Question 5). Natural History Stories (Question 6) ranked fourth overall in preference. Among Natural History Stories, Animal Personalities by far was ranked most preferred, while Insects was ranked by far the least preferred.

Fading Rural Lifestyle was rated as the most preferred subject matter in the category of History-Nostalgia Articles (Question 7), a category which ranked eighth overall. Wildlife From the Past was the next most preferred subject, with the remainder of the categories receiving nearly identical scores. Among Wildlife Arts and Crafts (Question 8), Wildlife Photographs were by far the most preferred material by the readers.

To summarize, hunting and fishing stories were most preferred by readers, followed in order of preference by Wildlife Management and Natural History articles. Among general categories of interest, where to and how to articles ranked high in preference. Articles dealing with equipment ranked low in preference, though ranking fifth overall. Wildlife photographs ranked very high in preference, as did articles dealing with animal personalities, habitat loss and fading rural lifestyle. Boating articles were rated as the least preferred by readers.

Categories of personal outdoor interests (Question 10) include traditional outdoor activities of Fishing, Hunting and Camping as the three most often included. Ranked fourth on the list, surprisingly enough, is Ecology, followed by Hiking and Photography. Tackle Making and Muzzle Loading ranked next to last, and last, respectively, on the list of categories of interest.

Readership Preference Survey*

1. HUNTING AND FISHING STORIES

1. How To Stories
2. Where To Stories
3. First Person Adventure Account
4. Equipment
5. Field Dressing

2. BOATING ARTICLES

1. Boat Fishing
2. Canoeing
3. Cruises and Trips
4. Equipment and Rigging
5. Navigation and Safety
6. Sailing

3. WILDERNESS ADVENTURE ARTICLES

1. Where To Go
2. First Person Adventure Account
3. How To
4. Spectacular Photo Stories
5. Equipment
6. Woodcraft

4. ARTICLES ABOUT ENVIRONMENT & POLITICAL ISSUES

1. Habitat Loss
2. Pollution
3. Gun Control
4. Federal Policies
5. Energy

5. WILDLIFE MANAGEMENT ARTICLES

1. Current Programs
2. How To

3. Issues
4. Management Statistics
5. Career Information

6. NATURAL HISTORY STORIES

1. Animal Personalities
2. Odd and Unusual Facts
3. Nature Study
4. Flowers and Trees
5. Personal Experience
6. Insects

7. HISTORY-NOSTALGIA ARTICLES

1. Fading Rural Lifestyles
2. Wildlife From the Past
3. Indian Lore and Artifacts
4. Landmarks
5. Adventure Stories
6. Famous Outdoorsmen

8. WILDLIFE ARTS AND CRAFTS ARTICLES

1. Wildlife Photographs
2. Wildlife Artists and Their Work
3. Wildlife Carving
4. Unusual

9. OVERALL READERSHIP PREFERENCE

1. Hunting Stories
2. Fishing Stories

3. Wildlife Management
4. Natural History
5. How To-Outdoor Equipment
6. Hiking-Wilderness Adventure
7. Environmental Issues
8. History-Nostalgia
9. Wildlife Arts and Crafts
10. Boating

10. CATEGORIES OF INTEREST

- | | |
|----------------------------|--------|
| 1. Fishing | 80.0%* |
| 2. Hunting | 77.4% |
| 3. Camping | 61.7% |
| 4. Ecology | 57.2% |
| 5. Hiking | 52.2% |
| 6. Photography | 47.4% |
| 7. Boating | 47.3% |
| 8. Wildflowers | 43.1% |
| 9. Bird Watching | 42.4% |
| 10. Cooking | 41.4% |
| 11. Woodcraft | 36.8% |
| 12. Environmental Activist | 31.1% |
| 13. Archery | 28.7% |
| 14. Tackle Making | 20.9% |
| 15. Muzzle Loading | 19.3% |

*Results in this category are presented as the number of times each category was checked expressed as a percent of all questionnaires processed.

OUR THANKS to those dedicated readers who took the time to give us their views. Your preferences will be given serious consideration in the months ahead. We have long considered our readers to have a wide interest in the outdoors and the survey confirmed this. We will try to select a variety of articles that will satisfy your desires and stimulate your interests in the outdoors.

Conservationgram



98 SNAIL DARTERS LOST IN ACCIDENT. While trying to save a few of these endangered fish, which have stopped the closing of TVA's Tellico Dam due to probable loss of their habitat, workers from the U.S. Fish and Wildlife Service, TVA and the Tennessee Wildlife Resources Agency accidentally killed 98 of the rare fish. Laboratory analysis have confirmed that a dip net contaminated with rotenone was the cause of the accident. Fish and Wildlife Service officials said it could not be determined whether the net was contaminated by rotenone in the bottom of one of the boats in use on the project or whether it had been previously contaminated. Rotenone is used routinely in many fisheries management activities. Ironically, the lost snail darters were being moved to give them a better chance of survival in the shallow waters along a 17 mile stretch of river that has been designated as their critical habitat above the Tennessee Valley Authority Dam.

NATIONWIDE 'SUN DAY' SET FOR NEXT SPRING. A broad coalition of unionists, small entrepreneurs, social activists and consumers announced today they were joining forces to 'lead the United States into the solar era' next spring. The climax of the group's effort will be called 'Sun Day' and will take place on May 3 in thousands of communities across the nation.

Among Sun Day events in the planning stage are teach-ins, demonstrations and energy fairs. The day will begin with a sunrise celebration on Cadillac Mountain in Maine, where the sun first hits the U.S. Later in the morning, New Yorkers will enjoy a sunrise concert at the U.N. Building. Citizen groups in Boston and Atlanta are already planning solar fairs while people in Martinsburg, West Virginia, are developing a solar home tour. Montanans are organizing a traveling energy road show, while Californians will coordinate literally dozens of events, from demonstrations and fairs to showings of sun paintings. In addition, thousands of schools and colleges will organize teach-ins and energy conferences.

CHESAPEAKE BAY MAP. A detailed, four-color map of Chesapeake Bay from the fall line to the Bay mouth was recently completed by VIMS, geological oceanographers and illustrators. It documents the bathymetry of the Bay, that is, the depths of water in the Bay and adjoining rivers.

The map, which is 33 inches by 56 inches, was based on 60,000 soundings in the Bay and 5,000 soundings in rivers flowing into the Bay. These soundings depict the bathymetry at 6-foot intervals for depths less than 42 feet and at 12-foot intervals for depths greater than 42 feet. The map also locates 17 rivers flowing into the Bay and 24 cities and towns.

The map shows channels with depths up to 150 feet. Scientists believe they were formed approximately 16,000 years ago during a period of lower sea level when the Chesapeake Bay was an extended part of the Susquehanna River.

You may order the map, VIMS Special Report in Applied Marine Science and Ocean Engineering No. 105, from the VIMS Library, Gloucester Point, VA, 23062. Folded copies are \$5.00 each and rolled copies \$6.00.

INTERNATIONAL ALLIGATOR SMUGGLING OPERATION. A three-year investigation by the Fish and Wildlife and Customs Service has turned up a \$700,000 operation which is alleged to have involved trafficking in some 2,500 American alligator hides. The hides were apparently taken in the Southeast and shipped through New York to Japan and France.

Story of a Bird House

By EDWARD W. BENINGTON

It was hewn, cut and carved from a Maine log, by a philosophical Utah whittler, and has been hanging in our Virginia garden for more than 10 years. Made of white birch, it has a wooden-shingled roof, hardwood flooring and a short stubby branch that serves as a balcony outside the main and only entrance. An architect once characterized it as "an excellent example of early barnyard Gothic, with a single-boarded mansard roof," all of which sounds quite flattering for a bird house. That it had character, there was no question, and later on, it developed a certain richness and even ripeness that was easily distinguished, though each tenant thoroughly redecorated the inside before taking up residence. One incident we will long remember looked like an eviction. The new tenants, a family of house wrens, would go in the entrance then come out with beaks full of the former nest lining and spew it down on our ivy with great distaste. We could see they were annoyed.

During its first year or two the House hung by a red cord from an old, ivy-covered Seckel pear tree. That was the period of the bees. There was no swarming, or honey, but large wicked-looking bees kept dropping into the House as people do in a country store. Once I even saw a black snake slither out on the limb to take a curious peek, but apparently it was not too interested.

It was while the House was hanging from the pear tree one summer that a family of three skunks decided they liked Seckel pears. We always thought of these delightful creatures as being nocturnal, but for the week or two they stayed, we were most respectful of their 24-hour territorial rights. While they were here we lived up to old Aesop's observation that "it is easy to be brave from a safe distance." We were quite brave.

Later on the House was moved to the lowest branch of a high cedar where it remains to this day. In addition to the House, there are five feeders within two second's flying distance, offering seed, suet and sunflower. These may be the reason we are blessed with such a wonderful variety of birds, running the gamut from the tiny kinglet and acrobatic chickadee to the occasional spectacular pileated woodpecker which is always a thrill.

The neighborhood of one-family bird dwellings has not changed in the last 10 years and the nearest high rise is over a mile away inhabited by several families

named Martin. The only real concern our bird friends have is four cats across the road, but this keeps them on the alert.

The first actual tenants after the bees were a pair of Carolina wrens. As is true of a great many birds, one spotted the House first, then the other came to "case the joint." After a few days of inspection they moved in. Another wren, possibly a near relative, would sometimes sleep in a corner of our house, not three feet away from the House and would audibly disapprove of us for having the nerve to sit on our own porch when he was preparing for bed. However, his loud, clear and almost sweet song just before retiring would tell us all is forgiven. But if anyone dared turn on the light, his glare could almost be felt.

The next inhabitants, Carolina Chickadees, seemed so pleased to find lodging they flew all over the neighborhood telling all their friends, with their quick onomatopoeic call. A delightful bird and one of our favorites, this wee creature seems most happy with his lot in life. His song, his friendliness and fearless spirit makes him one of the best known and best loved of birds. We are most grateful to him for keeping the aphids from our roses and bugs from our cedars, and have watched many times as he flits about having a progressive dinner among the feeders; suet from a rustic log, bird feed from a flat board, then finally a drink of water from the bird bath; all this before going home to the House.

For the last season or two the House has been vacant, the wrens once more taking up residence in our garage. Perhaps it isn't modern enough for the new generation, or it might have become a little too ripe. We had always made it a practice each fall to take "stuff" out of it. Such items as coarse sticks and wood stalks, grass, feathers, leaves, even bits of wool and wads of dust are usual after the wrens have nested. The chickadees are much better housekeepers, leaving beautiful nests. One in particular was so well made, of fine moss, lined with soft hair, that our Audubon Society used it in a nature course.

We have seen a squirrel upside down exercising his teeth on the hardwood floor, and another stripping birch bark for some unknown reason. Vandalism? Once a teen-age neighbor couldn't believe her eyes when she saw a flying squirrel looking out the entrance, like a little boy peering from the window of a deserted house. Perhaps he was responsible for the 13 hickory nuts.



This house (above) was a favorite home for chickadees.(below left).



The pileated woodpecker was a frequent visitor.



As mentioned before, the House is now empty; just hangs on the old cedar, hopeful, but passive and resigned. It is slightly run-down and neglected now, even ignored. But if the House has a soul and even a little feeling, it should have wonderful memories. Just as we have.

Bargain Baits:

Do it Yourself and Save

By MORRIS MAUNEY

Ever wonder what to do during rainy days or closed fishing season? Consider making your own fishing tackle.

Perhaps you have considered it too costly, or felt that too many tools were involved. Generally, lures can be made at a fraction of the retail store cost. Few tools are needed, often a pair of pliers will do the job. You can reproduce any of the standard tackle items or perfect your own design.

A mold is the only tool needed to make many of the new soft plastic lures. Soft plastic lures can be made easily by either of two methods. One method involves heating an open face metal mold and adding a liquid plastic which hardens to the proper consistency with heat. The second method involves heating liquid plastic to 350 degrees F, pouring into a mold, and allowing the liquid plastic to cool. Your favorite style and color of plastic worm, plug or insect imitation can be made in minutes with ease.

Molds are also available to make lead-headed jigs and sinkers. To pre-

pare lead-headed lures you will need a ladle, wire cutters, proper molds, file, and heavy pliers. Lead can be melted in the ladle over a gas or electric range. For best results, the mold should be treated with fluorocarbon lubricant or smoked with a candle flame for easy release of jigs. The ladle is then used to pour the molten lead into the mold, in which a jig hook of the desired size has been fitted (Fig. 1).

If desired, a split ring can be used to allow you to change or replace hooks without disassembling the lure. Spinners may be dressed up with feathers, bucktails, or pieces of surgical tubing (Fig. 4-G). Different body parts, body colors, and blades may be used.

The degree of skill needed for making lures varies with the type of tackle being made and the degree of perfection required in carving your own wooden plugs than in preparing small spinners. Whatever your talent, special kits can be purchased from various tackle companies which provide all necessary

parts and tools (these make excellent gifts for both the beginner and the avid fisherman). Department stores often carry various types of mold kits, lure parts, and tools. Many tackle supply companies provide free-of-charge catalogues displaying a variety of parts, molds, and kits. Most bookstores carry a number of how-to-do-it books to help the beginner in preparing flies, lures, jigs, and plugs. A review of prices will clearly show that building your own tackle is very inexpensive relative to the cost of factory-made equipment. For example, the price of your favorite spinner may range from one dollar to one dollar and fifty cents in retail stores; you can generally make this lure yourself for under twenty cents. Similar savings can be realized by making your own jigs, plugs, and plastic lures.

Making your own lures may improve your fishing. Knowing that you may lose only ten to twenty cents allows you to concentrate on fishing lure-stealing structures without fear of the expense. More and larger fish should enter your creel.

Perhaps the most important advantage of home tackle manufacture is the satisfaction in knowing you caught that fish on your own specially designed lure. So, stop killing time waiting for the action to start. Get ready to enjoy a bigger piece of that action with your own tackle.

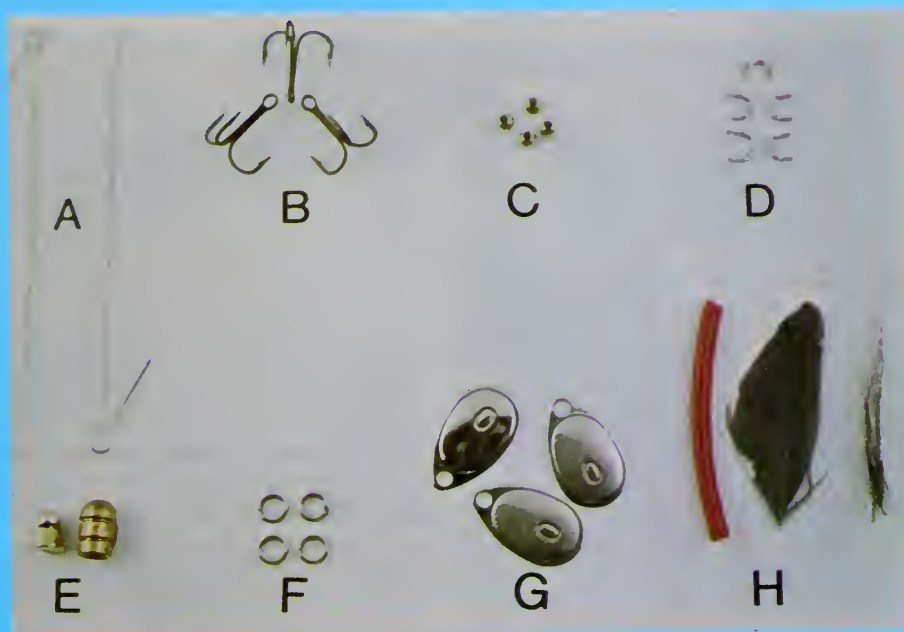
A list of tackle manufactures will be provided by the author upon request.

A lead pot, top, a jig mold and paints are the essentials for making your own jigs. A supply of hair or feathers and tying thread will also be needed unless you prefer a skirt or grub.



To prepare a jig follow the steps shown here:

- (A) Lead to be melted in the ladle.
- (B) Choose the proper hook size for the weight of the jig (example: 2/0, 1/2 oz., 1/0, 1/4 oz.)
- (C) After pouring molten lead into the mold remove the jig.
- (D) Remove the sprue (excess lead at the opening of the mold) with wire cutter.
- (E) File away the flash (lead that occurs along the edge of the jig).
- (F) Paint the jig.
- (G) Wrap the shaft of the hook with feathers or bucktail which can be purchased or saved from your hunting trips.
- (H) After wrapping, trim the excess hair or feathers along the shaft.

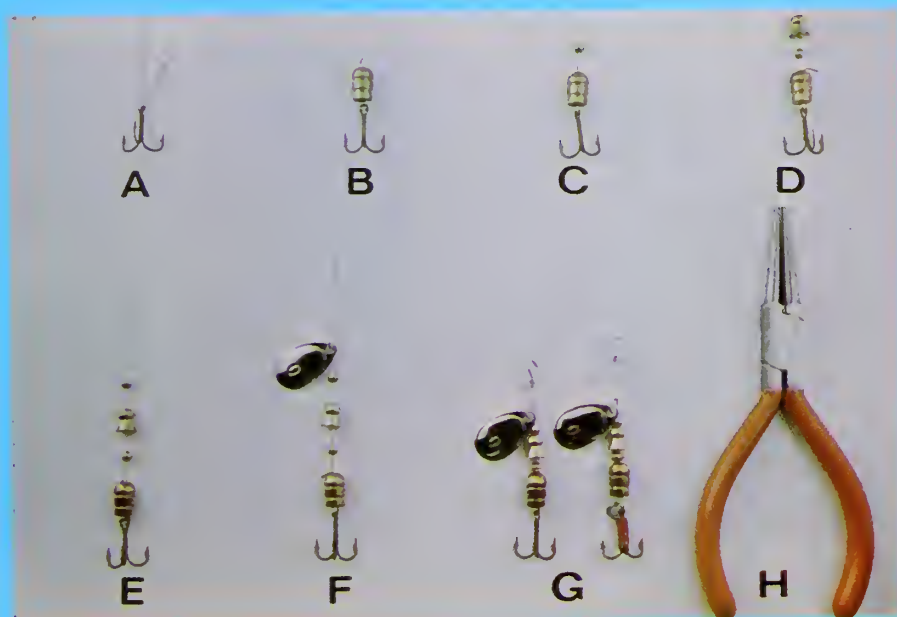


Spinners can also be easily made in the home. The basic tool required is a needle-nose pliers with side (wire) cutters. Parts used in making spinners are (Fig. 3): wire shafts (A), hooks (B), unies (small beads) (C), clevises (D), bodies (E), split rings (F), blades (G), and, if desired, a small piece of surgical tubing or bucktail (H).

Spinnerbaits combine the techniques of jig and spinner making. The wire is fastened to the hook and molded into the jighead. The jig is then dressed and the spinner shaft bent and outfitted with blades and beads.

To prepare a lure follow the steps shown here:

- (A) Place treble hook on the open ring of the shaft.
- (B) The bottom body is then fitted over both wires. Bend the shorter wire over the body and cut with wire cutters.
- (C) Add a uni.
- (D) Add the top body.
- (E) Add another uni.
- (F) Place a clevis with blade on the shaft.
- (G) Make a loop at the head to complete the spinner.
- (H) The loop is easier to make with the proper type of pliers.



TURKEY CALLERS



By BUCK SNELLINGS

If you happen to be one of the turkey hunting fraternity's older members or have a father, grandfather, or uncle that is, then chances are you may have a cow-horn caller. If not, then read on.

In over a decade of turkey hunting I have collected quite an array of callers, running the spectrum from cedar boxes to diaphragm yelpers. While I had settled on a combination of callers (Bill Tannerhill slate caller and Lynch's double-lipped box caller), that produced for me with reasonable consistency, I still yearned for a "paper-thin" old-time cow-horn yelper.

While I tried making a few cow-horn yelpers, they somehow fell short of the quality, family heirloom type that I grudgingly admired, both in sound and appearance.

When it seemed that the "will-o'-the-wisp" of my hunting dreams had eluded me, the unexpected happened. I received a birthday gift of a beautiful, hand finished, toned and tuned cow-horn yelper.

It seems that ardent turkey hunter, Judson S. Dye of Hartwood, had agreed to produce 50 of these callers at the request of Tom Rodgers, Executive Vice-President of the National Wild Turkey Federation. Rodgers reports that many turkey hunters in various sections of the country have never seen this type of caller and when they see his horn yelper they are anxious to obtain and try one themselves. En-

couraged by the enthusiastic reception given the initial turn-out, Dye has continued to fabricate these yelpers for family members and some hunting associates. Happily, I was among the latter.

The components of the caller include a cow horn, section of synthetic tubing (12-14 inches in length) and the small wingbone of a turkey, preferably that of a wild turkey.

Dye first grinds down the excess thickness of the cow horn on an electric grinder. He then completes the thinning and polishing operation with a piece of glass. The thinner the horn, the better the reverb or sound chamber.

The actual quality of sound and tone are controlled by the size and brittleness of the wingbone. The more brittle the wingbone the better, believes Dye. "I don't believe the wingbones of domestic turkeys are brittle enough," states Dye.

The length of hose or tubing seems to have little effect on the sound or volume of the callers. Dye uses several diameters of tubing including 1/8 inch, 3/16 and 1/4 inch, depending on the size of the wingbone and cow horn.

The art of using these callers is somewhat difficult to master, but some turkey hunting purists would have nothing else. As Judson Dye puts it, "These callers will produce when nothing else will, especially during the spring season."

For further information, contact: Judson S. Dye, Rte. 6, Box 455—C, Hartwood, Virginia 22471 or telephone (703) 752-4798.

HUNTER SATISFACTION SURVEY CONTINUED

Virginia resident hunters subscribing to *Virginia Wildlife* appear to experience very diverse satisfactions of varying importance from hunting. On the average, aspects of the environment (nature) appear to contribute most to satisfactions; seeing hunters from other parties was perceived as detracting most from hunting enjoyment. The average hunter rated 10 of the 11 dimensions as being positive (contributing to satisfactions) in various degrees and 1 of the 11 dimensions as being negative.

It should be obvious that the Virginia Commission of Game and Inland Fisheries has an enormous, intricate task in attempting to maximize hunter satisfactions. Each hunter experiences varying amounts of satisfaction from different dimensions. Probably no two hunters experience the same amount of satisfaction for each dimension. Desires of individual hunters probably change with time.

Hunters will probably never have the opportunities that their forefathers did, but they probably have more opportunities than will their descendants. Within our generation we will probably see most types of hunting on public land by permit only. Game populations will reach environmentally and man-controlled limits; habitat will continue to decline in quality and acreage; humans and hunter populations will burgeon; wildlife agencies will broaden their funding base and increasingly stress nongame management and nonconsumptive values of wildlife. These conditions underscore the necessity for wise planning involving hunter-citizen input and decisions about trade-offs that must be made. Sportsmen's input, cooperation, and financing will help the Virginia Commission in the sound management of today's wildlife for future generations.

FISH AND SHIPS CONTINUED

There's a logical reason. The mouth of the Chesapeake Bay is part of one of the busiest ports in the world. Merchant ships from all over the globe travel in and out 'round the clock, the U.S. Navy and other military units train in the area, and the

menhaden trawler captains were afraid of snagging the wrecks in their nets.

"I can understand the opposition to having the sunken ships closer," says Mike. "You've got to realize there's a lot of valuable space in a small area just off the Bay. Yes, it would have been nice to have them two miles offshore, maybe closer, like some of the other states. But they'll still do the job. We're doing all right."

Maryland, North and South Carolina, Georgia, Florida and Texas all have artificial reef programs similar to Virginia's. Texas has a dozen ships that have been sent to the bottom of its coast.

Virginia may have to settle for six. When the Clark went to the bottom this summer, it was the last of six Liberty ships allocated to the Virginia Marine Resources Commission by the U.S. Maritime Administration.

The project was paid for by a \$50,000-a-year grant from fuel taxes on boats.

An estimated million Virginians and more than a third of a million tourists do some type of salt-water fishing along the state's coastline each year.

There have always been a few wrecks off the coast that have drawn fish and fishermen like magnets. Some were torpedoed during World War II by German subs that cruised up and down the East Coast. Others were victims of storms or other natural disasters.

Today, there are six new wrecks and one tire reef that should make fishing even better.

"The ships are an environmentally safe way to increase sport fishing in Virginia's waters," says Mike.

"Though being sunk to create an artificial reef is perhaps not as noble as going down in battle, these World War II relics have found a use for several decades to come."





Begin with a forty-five degree bend.



The second bend is also a forty-five degree made with the finger.



The third bend is the top or point bend. Align this point with the main spinner shaft.

Diamonds for Spinners

If you happen to enjoy making some of your own lures as I do, you might find this method of making spinner shaft eyes (often called loops by some lure makers) simple and effective. Making a good round eye on the shaft of a spinner bait has always presented somewhat of a problem for me. There are times a tool designed for this purpose is almost a necessity. Maybe you have had the same problem. I have purchased, and made, spinner baits with oblong type eyes (loops), and even eyes that I would call oblong, lopsided eyes. They have their purpose, especially on designs such as the safety pin baits, and are very good. These type eyes are not as difficult to make and often, when I am trying to make the traditional round eye, I come up with the lopsided eye anyway. So, with these thoughts in mind, I began experimenting with shapes other than the traditional shapes.

What I came up with, and am now using on many of the spinner baits I make, was the *diamond* shaped eye. Maybe I have been somewhat near-sighted (I try to keep up with most spinner bait designs), but I haven't seen this type eye on any design so far. It is very easy to make and will

serve the same purpose as the round, or others, in practically all situations.

Needle nose pliers and wire cutters are the only tools you will need. The illustrative photos will aid you in forming this eye but, actually, the forming is so simple it takes little descriptive writing or photos.

To begin, allow yourself the usual working length at the end of the shaft. This can be an inch or so, depending upon your preference and the size eye you will be making. Grip the wire at this point with the needle nose pliers and make a 45 degree bend. With the same grip, bend the wire another 45 degrees with your finger. Remove the pliers and regrip at the last bend. Continue with the bends until you are back at the main shaft. Wrap two or three times around the shaft and snip off the remaining wire end.

You can judge the size of the eye by where and how you grip the wire with the needle nose pliers. In other words, by gripping the wire, and making your bends, with the narrow (point portion) of the pliers you can make the eyes smaller. As you make your bends deeper down into the jaws of the pliers (where the jaws are wider) you can form a larger eye.

It might be well to mention that when making the top, or point, bend, make it in line with your main spinner shaft. As the lure is being retrieved after a cast, this will create a straight line effect and cause the lure to run straight and true through the water. I always use a snap swivel when fishing with a spinner bait (an exception might be the safety pin designs and etc.), but I have found this diamond shaped eye (loop) to give no more line twist than the round. In some cases, maybe even less twist.

Dwight L. Peterson



Continue forty-five degree bends until back at the main shaft. Make two or three wraps around shaft and snip off remaining end.

Kaleidoscope

One of the most frequently asked questions relating to bird feeding is: How does one discourage squirrels away from the feeding area? These lively, omnivorous rodents, namely the gray squirrel (*Sciurus carolinensis*), act as though feeding stations were designed primarily for them. They consume large quantities of the more expensive foods such as sunflower and whole peanuts and engage in gustatory activity for minutes at a time, thus, occupying space at the feeder and excluding our desired feathered visitors.

Fortunately, there are ways of harmlessly eliminating these bushy-tailed thieves from the feeding platform. Nearly any hanging feeder or one on a post can be squirrel-proofed. Metal shields of various kinds have been used effectively to prevent squirrels from climbing feeder posts. A smooth cone-shaped device with the edges sloping downward and attached several inches below the feeder is usually successful as long as there is nothing on it that a squirrel can grip with its teeth or toes. A bell-shaped aluminum guard, 9 inches in diameter at the bottom is ideal for round feeder posts about one and a quarter inches in diameter. Assemble the guard onto the post, then attach the feeder. Don't underestimate the dexterity and determination of the gray squirrel. Install these feeding apparatus away from buildings and trees. Because some gray squirrels can jump $3\frac{1}{2}$ -4 feet upward from the ground, place shielding about $4\frac{1}{2}$ feet above the ground. Allow for snowfall which will permit shorter leaping distances.

One can devise a scheme to detract squirrels from hanging feeders. Select three phonograph records with at least 12 inch diameters and cut a garden hose into three 4 inch sections as shown in the illustration. Another method is to cut 1 inch plastic tubing into two lengths of 36 inches each. Insert these two pieces

How to Fool a Squirrel

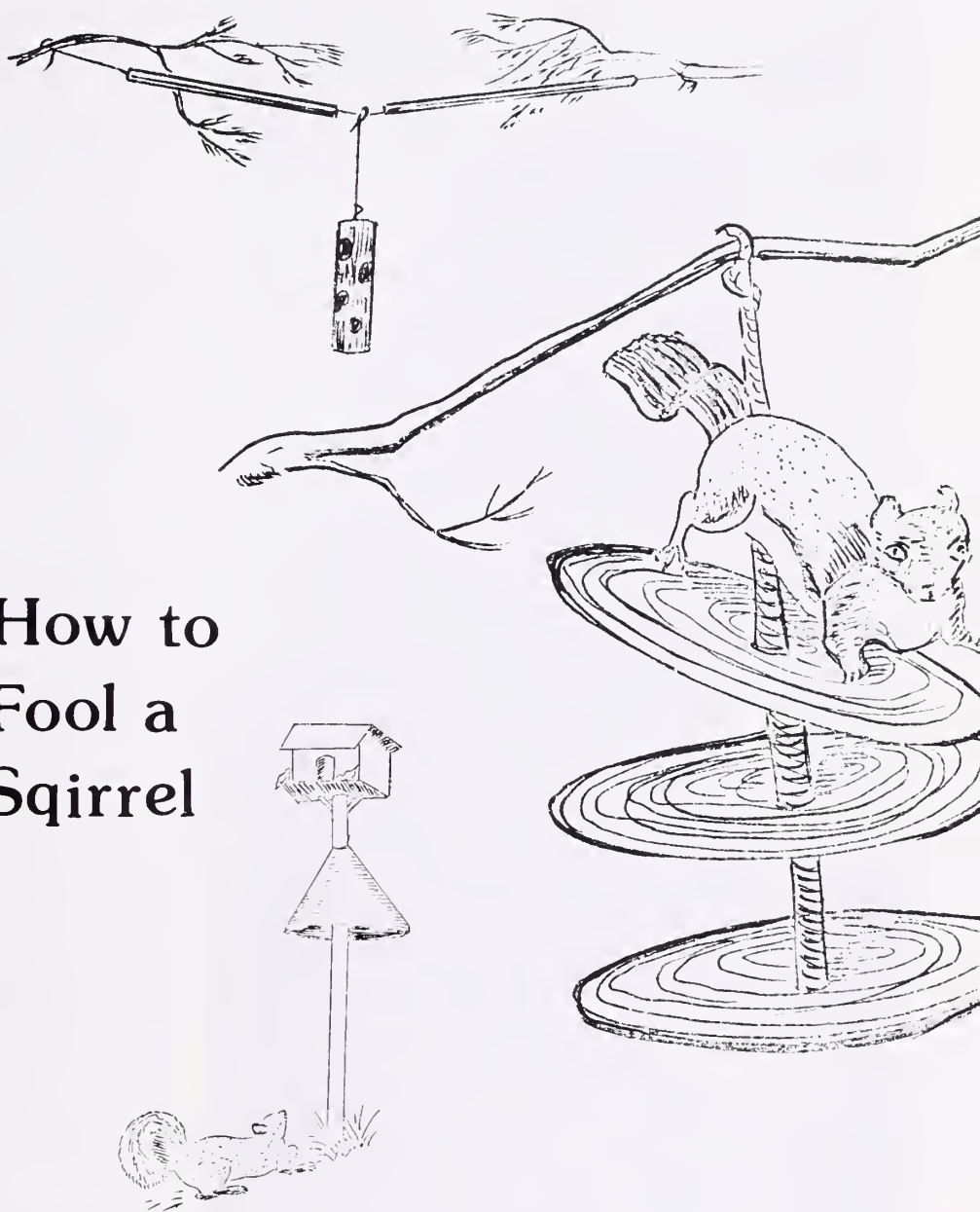
onto a taut line as shown in the illustration. These two squirrel-proof paraphernalia are guaranteed to cause a tumble. Still another alternative is to render the services of a yappy dog.

A tactic which might, though often does not, solve the squirrel feeding dilemma is removing the creatures away from your home. Wooden live traps size 24 x 9 x 9 inches baited with sunflower seeds should do the trick. To be reasonably assured of their departure,

release the captured animals 20 miles away from your home in a wooded area, with the landowner's consent of course.

We cannot help but admire these bright-eyed, often ubiquitous animals which can give us as much pleasure to watch as our bird clientele. Special feeders can be set aside for squirrels or possibly a plentiful supply of natural foods will divert their attention away from our bird feeders.

Emily Grey



Underground Weather

By JANE GRAHAM

Groundhog Day. This uniquely American holiday always brings to my mind a picture I saw sometime during my childhood of a sleeping groundhog happily bundled in a little wooden bed, snug under a patchwork quilt. On a wall of his burrow was a February calendar, the two circled in red.

A totally unrealistic fantasy, of course, but one that always evokes some sympathy from me for the poor old groundhog who has to crawl out on this one day of the winter to tell a bunch of humans what the weather is going to be for the next six weeks.

"Cold, of course," I can almost hear him mutter as he slides further under the quilt.

Groundhog Day can be classed as one of the first rites of spring—one that marks the beginning of the end of winter. When winter gets to the point of being unbearable, we humans begin to wonder, "how much longer." Over the years we found a way of telling—if the groundhog sees his shadow on February 2 there will be six more weeks of winter weather. If he doesn't see his shadow, the weather is going to improve.

Of course, it's a lot of stuff and nonsense—that's what Groundhog Day is all about—but it brightens the dark days of winter and sparks that most important of human emotions, hope. It also serves to give us a chance to make fun of ourselves and the weather.

Nowhere is this done with more good humor than within the Slumbering Groundhog Lodge of Quarryville, Pennsylvania. There, the observation of Groundhog Day is a tradition and an art. At dawn, members of the Lodge are out to see if the groundhog will see his shadow. They are properly attired, as befits so solemn an occasion, in the prescribed garb—tall silk hats and long white night shirts. They carry shepherd's crooks and wear heavy chains around their necks and on their chests.

The Lodge's Hibernating Governor Robert W. Herr reports that the Lodge holds a pageant each year based on a current event that lends itself to spoof coupled with a relationship to the mysteries of the Lodge. Baby Groundhogs as the new members are known, are initiated during the Groundhog Day celebration, adding hilarity to the day. Membership in the Lodge is limited to 99 and the number of Baby Groundhogs taken in each year may not exceed the number of members who died the preceding year. Lodge members must be local residents of 35 years of age or older.

The editor of *The Intelligencer-Journal* in Lancaster, Pennsylvania stated the Lodge's purpose in an

editorial entitled "Fun For Fun's Sake" on February 3, 1964. He said, "It's perpetuation is solidly based on the premise that man is all too prone to take himself and all his works far too seriously on far too many occasions.

"Here in this organization of the Slumbering Lodge of Groundhogs there happily thrives a group of gentlemen convinced of the value of the gentle spoof in a world where too many people have forgotten how to laugh at their own pomp and ceremony.

"Here in the Slumbering Lodge of Groundhogs there exists an organization that has no noble purpose, has nothing to sell, has set no goals for itself and asks favors of no one.

"The cynic will claim that such an organization is not worthy of recognition and would best be forgotten.

"A wiser person will recognize the lodge and its membership for a rare treasure of humor in the world where humor is an increasingly rare commodity.

"Hail! Slumbering Groundhog. May your shadow lengthen across the old globe."

The celebration of Groundhog Day may be traced to two origins—our European heritage and the groundhog's actual habits. Both the English and German settlers brought to the New World traditions of animals that predicted the weather. The English relied on the hedgehog while the ancestors of the Pennsylvania Dutch, the Palatinate Germans, looked to the dach, a badger-like animal. In Quarryville, the Lodge's official groundhog is named "Otto" from "Otto the Great," first king of Germany and Emperor of the Holy Roman Empire. It is a fitting name for the first Groundhog weather forecaster with an infallible reputation of credibility, Emperor of All That He Surveys," according to Hibernating Governor Herr. (The Lodge claims a 100 percent accuracy rate for Otto.)

The groundhog's habit of waking up in the late days of winter may also have played a part in his starring role on February 2, although he is very seldom up that early in the month. A true hibernator, the groundhog begins his long nap in the early fall after a summer of feasting on grass to prepare for the winter. His body fat increases to about four times its normal amount during the late summer months. Scientists have found that the groundhog has a special kind of dark fat which decreases at a slower rate than the normal fat. They think this may play a part in his entering hibernation.

From early October to late February, the groundhog sleeps curled up with his head tucked beneath his

Forecaster

tail, waking periodically to eliminate wastes from his body. Most of the winter, his body temperature stays between 40 and 45 degrees, his heart beats very slowly—less than five times per minute—and he breathes infrequently—perhaps a dozen times an hour.

When it's time to wake up, in late February or early March, he does it with a bang. The process takes about two hours with his pulse rate jumping as high as 200 beats per minute, bringing his body temperature to its normal 97 degrees.

Shortly after finishing their winter's nap, groundhogs mate. The litter of four or five is born about a month later in a den occupied only by the mother—she has driven her mate away. The naked, blind babies spend their first six weeks in the nest before she leads them outside and introduces them to grass, the woodchuck's basic food. This largest member of the squirrel family prefers domestic grasses, clover and succulent green plants.

About mid-summer, the litter breaks up, with the mother helping the young find old abandoned burrows or digging new ones for each of the young. The burrows are located in meadows or along the edge of woods and roadways.

While these burrows, in fact, lack a wooden bedstead and homemade quilt, they are quite sophisticated. They feature at least two entrances, flood protection, a toilet and combination bedroom-nursery. The burrows average 14 feet in length but may be as long as 40 feet. The main entrance is marked by a mound of dirt. The second entrance is used as an escape route and is practically hidden in the grass and rocks. The tunnels move upward through the soil to keep the rain out. Off the main tunnel are at least two chambers, one which is used as a toilet and the other as a bedroom and nursery.

For many farmers and gardeners, the groundhog has a bad name—he likes to raid gardens and his holes create dangers for farm animals and machinery. In spite of his reputation, the woodchuck has some good points which make him a friend of man. He helps improve the soil by bringing subsoil to the surface where it is exposed to weathering action, according to scientists at Virginia Tech. His tunnels also provide channels for more air and water to get underground, the Tech scientists report.

The empty burrows provide shelter for other wildlife during the fall and winter. The King of February 2 is the source of hours of enjoyment for many hunters. Since he is considered an undesirable species, he



may be killed in Virginia throughout the year, though I feel a bit disloyal mentioning it.

But on Groundhog Day, most of us remember only one thing about the fat, sleepy ole groundhog—he can tell us how much more winter to expect. For this he asks not a thin dime or a wilted clover leaf—just our thanks for his crawling out into the cold one morning of the winter. And he'd like for us to close the door for him. He's in a hurry to get back to his dreams.

Area in Crisis: Back Bay



By ELIZABETH MURRAY

The dunes of Back Bay

The Virginia Society of Ornithology had a good field trip to the Back Bay National Wildlife Refuge during the first weekend in December last year. Not quite everybody saw their fill of the short-billed marsh wrens and most of the whistling swans were a long way away for those without spotting scopes, but this did not detract from the success of the trip. Extra bonuses included, for some, a good look at a large king rail, another at an American bittern, quite close, a flock of greater snow geese right overhead and a group of shoveler ducks shoveling busily very near to the shore. And the weather was a pleasant surprise for all. Prepared for the piercing winds, sleet, fog and sub-freezing temperatures with which Back Bay normally greets its December visitors, everybody had muffled up to the eyebrows only to be greeted by cloudless skies, brilliant warm sunlight and almost no wind. At noon everyone picnicked at the dock in their shirtsleeves, and in the afternoon my children played barefoot on the beach. The combined bird list for the ornithologists included over 80 species before most of the group left to go to Lynnhaven Inlet for the rest of the day.

The Back Bay National Wildlife Refuge was established in 1938 primarily to provide sanctuary and habitat for migratory birds. The refuge comprises a

little over four and a half thousand acres which includes 4.2 miles of ocean beach, as well as sand dunes, marsh, woodland and cultivated fields. The Bay itself roughly doubles this acreage. The refuge has a spectacularly rich and diverse bird life. In addition to the huge flocks of whistling swans and snow and Canada geese, there are wintering duck populations of mostly American wigeon and gadwall but many other species in smaller numbers. The principal nesting species are black ducks and mallards, but gadwall and blue-winged teal also breed in the refuge. Shore birds include sandpipers, plovers, terns, gulls and loons. Often large flocks of gannets can be seen on the ocean. The refuge is a stopping place during migration for many birds including the endangered peregrine falcon and the snow bunting, and is a wintering place for the rare Ipswich race of the Savannah sparrow and many other songbirds.

The most abundant mammal on the refuge is the nutria and there are also muskrat, raccoon, opossum, mink, otter, deer, and cottontail and marsh rabbits.

The barrier dunes effectively block the ocean from the bay. Because of the dunes, fresh water can be kept behind earthen dikes to permit control of water levels and provide greater diversity of wildlife habitats. On Long Island in the bay, 59 acres of perma-



The least bittern is a bird typical of those found in the Back Bay marshes.



Boating on Back Bay is made difficult due to the heavy growth of Eurasian milfoil. Turtle on beach at the Back Bay National Wildlife Reserve.



nent fescue pasture is maintained to supplement the food supplies for the geese. An estimated 40,000 snow geese frequently use the refuge as a winter home.

The staff at the refuge have been working for the last five years to re-establish the loggerhead turtle, *Caretta caretta*, as a routine nesting species. This turtle is now found nesting all along the Florida, Georgia, South Carolina and many of the North Carolina beaches, and years ago it did use the Virginia coastline although never as much as the beaches of the deeper south. The present program involves transplanting naturally laid 45-day-old eggs from South Carolina to the beaches of Back Bay. The eggs are re-buried in the sand and when all goes well, young loggerheads climb through the sand 10-15 days later and make their way down to the sea where they will grow to maturity over the next seven years. Mr. Holland, the former Refuge Manager, told me that if just one percent survive, then we may hope to see the first half dozen huge female loggerheads laboriously crawling out of the surf some dark night in the summer of 1979 and making their way up the beach to lay their eggs.

The future of the Back Bay refuge is in jeopardy because of the use of the beach as vehicular access to

North Carolina. Immediately south of the refuge and extending seven miles to the North Carolina border is land owned and being developed by the state as False Cape State Park. For 25 miles south of this from the state line to Caffey's Inlet is a strip of land which was uninhabited except for the small community of Corolla. However, in recent years most of this land has been bought by speculative developers who are trying hard to sell lots for beach houses with access via the refuge beach. This increased beach traffic so astronomically that in 1973 the beach was closed to all traffic except a few permit holders. When the legality of limited access was questioned, the courts ruled that the arrangement was both reasonable and legal and if it should be found to be discriminatory, the remedy would be total closure of the beach rather than more access. Unfortunately, business interests did not let the matter rest there. Political pressure was brought to bear in Washington causing the Department of the Interior to propose new regulations allowing more cars to have permits to use the beach. This was immediately challenged and twenty-four conservationist groups joined in a civil suit against the Department of the Interior to stop the implementation of these regulations. Actually the regulations never were put into practice before they expired at



Snow geese (top left) frequently winter on Back Bay and nearby Currituck Sound.



The Back Bay area (bottom left) is unique in that it is a large fresh water marsh located near the Atlantic Ocean. (above) Bonapartes and sanderlings feeding in the surf.

the end of last year. In early April of this year the courts dismissed the conservationists' suit declaring that the issue was moot because of this expiry. In the meantime a new set of regulations have been drawn up and will probably be put into effect issuing permits to anyone who established a permanent residency in the area before 1975. The previous cut-off date for residency had been 1972 which made more sense, since before that date there was no suggestion of beach closure, whereas those who bought property between 1972 and 1975 did so in full knowledge of the possibility of there being no access via Virginia. The new regulations will increase beach traffic although not as much as if all property owners were included. However, it is very much to be hoped that this does not represent the "thin end of the wedge" gradually to be widened until the volume of traffic reaches a level which is totally incompatible with all the original functions of the refuge. During this new administration the matter has to be resolved permanently, which ought to mean exclusion of all traffic, so that the refuge need no longer be continually fighting for its life, and refuge staff can get back to maintaining the refuge instead of directing cars.

Anyone who has been in our state for the last 30 years can drive along the east coast and notice how rapidly it has become almost homogeneously built up. There are very few natural areas left and the desirability of protecting this one for all of us from any kind of local encroachment which serves the business

interests of only a very few, ought to be obvious to everyone.

And anyone with a turn for pathos should listen to Mr. Romie Waterfield. Mr. Waterfield and his wife are the only people who live actually on the refuge, looking after the goose pasture and all the other biological maintenance. His description of a newly hatched loggerhead turtle on its precarious way back to the sea trying to climb out of a deep tire track ought to dissuade any car from ever going near the beach again!

Since this article was written, the U.S. Department of the Interior has announced that it will prohibit all vehicular traffic on the beach of the Back Bay National Wildlife Refuge but that the full ban will not go into effect until 1980. Until then, permanent residents of the Outer Banks communities will be permitted more frequent use of the beach as a highway. Permanent residents are considered to be property owners and vacationers owning improved property prior to October 1975. They are to be allowed two trips a day across the beach between 5:00 a.m. and 11:00 p.m.

The ruling will, of course, mean that there will still be considerable traffic down the beach for the next three years. One can only trust that no irreversible damage to the refuge will be done during this time. And the greatest hope of all is that nothing will occur to prevent the full ban on traffic coming into effect on time.

IT APPEARS TO ME

BY CURLY

...A PERSON OUGHT TO HAVE ONE---

It certainly isn't too early to think, or at least DREAM about, what we would like to do come summer. Along those lines, our near-neighbors up in Pennsylvania have a free booklet for you folks that might be heading that way. Write for RECREATIONAL OPPORTUNITIES IN PENNSYLVANIA'S STATE PARKS, Office of Public Information, Department of Environmental Resources, Box 1467, Evangelical Press Bldg., Harrisburg, Pa. 17120.

OPEN SPACE AS AN AIR RESOURCE MANAGEMENT MEASURE is a report done for the Environmental Protection Agency which defines the effectiveness of green belt designs as air filtration "devices". Request it from Library Services Office (MD35), Research, Triangle Park, N.C. 27711.

Free copies of the C.E.Q. publication OIL AND GAS IN COASTAL LANDS AND WATERS are available from the Council on Environmental Quality, 722 Jackson Place, N.W., Washington, D. C. 20006.

Dismal Swamp *aficionados* will be interested in learning that a tour of the swamp will be given on Saturday, February 25, 1978. Sponsored by the office of Dismal Swamp Programs, the outing is scheduled to begin at 9 A.M. and conclude at 3 P.M. Both ecological and historic aspects of the



area will be emphasized. Write to DSP, 1551 West 49th Street, Norfolk, Va. 23508 or call 804/489-6689.

Seeing as how habitat is such an important factor in the well being of wildlife and fish, we are fortunate in having available to us a publication entitled A HANDBOOK FOR HABITAT EVALUATION PROCEDURES. It is available by requesting Resources Publication No. 132 from the U. S. Fish and Wildlife Service, Department of The Interior, Washington D. C. 20240.

...FOR YOUR BOOKSHELF---

THE PRESIDENTS (from the inauguration of George Washington to the inauguration of Jimmy Carter) is a hard bound 600 pager which has been produced by the National Park Service. Not only are the Presidents described in detail, but their homes and birthplaces as well. Virginia comes out well, naturally, with descriptions and photos of Mount Vernon, Berkeley, Monticello, Montpelier, Oak Hill and Tuckahoe, just to mention a few. The book is a thriller of the patriotic kind and is available (\$8.00) from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

Stackpole Books has recently published a pocket-sized book titled TRAILSIDE SHELTERS which will, I predict, appeal to many of you readers. Throughout the pages, details are to be found which range from the use of a simple tarp to camping trailers and family size wall tents. Included also is a wealth of invaluable technical information pertaining to dimensions, weight, price and even photos of the tents which have been covered in the book. Coverage of emergency shelters is done nicely. Price for the 218 pager is \$2.95, Stackpole Books, Cameron & Kelker Streets, Harrisburg, Pa. 17105.

CONSERVATION DIRECTORY 1978, the annual and indispensable publication which guides the volunteer and professional alike, is available now at \$3.00 from the National Wildlife Federation. More than 11,000 organizations and persons in the conservation and related fields are listed. Added this year are listings of national forests, parks and seashores. Order the publication from the National Wildlife Federation, 1412 16th Street, N.W., Washington, D.C. 20036.

...AND THEN---

As I recall it was only a few years back that we were all "hot and bothered" about a variety of recycling projects. Seems as how, now, only a few of us are any more than just the latter, bothered, that is, by the fact that this obviously valid and valuable venture has all but vanished from the scene.

Personalities

Edited by F. N. Satterlee

GEORGE A. HAWKS, Sussex County Game Warden

George 'Chick' Hawks was raised on the family farm, a 250 acre spread located in Sussex County near the community of Stoney Creek. Growing up in this rural atmosphere had a profound effect on him. Although he always had chores to do (plowing with a mule, milking cows before and after school, caring for the other livestock and a 'million' other jobs) he did get to fish and hunt frequently. These early experiences coupled with the fact that it was at the height of the depression taught him the value of the dollar, people and wildlife.

When asked about his nickname, Chick, he is quick to explain that he acquired the name while in Second Grade. At first he was called Chicken Rooster, then Chicken and finally Chick, the name by which he is affectionately known to countless numbers of Virginians.

Following graduation from Stoney Creek High School, he worked for a time in a general store, tried his hand in the filling station business and finally returned to farming at the home place. In October of 1948 Hawks joined the Game Commission and was assigned to duty as the Warden in Sussex County. Early in 1949 and in the spring of each succeeding year for some six years he was on temporary duty in Carroll County in conjunction with the opening of trout season. He fondly recalls that during these periods he had 'the good fortune of learning from the warden from Fancy Gap, Ed Gardner.' According to Chick, 'working with and helping people' is the most satisfactory aspect of his job as a Game Warden.

Hawks has a hobby which he claims began when, as a child, he saw a brand new 1928 Ford automobile. He determined that some time in his life he was going to have a Ford. Now he collects and restores them and currently owns nearly a dozen.

He is married to the former Mary Virginia Rose of Sussex County, Virginia and, although the couple still owns the farm on which Chick grew up, they reside in Stoney Creek.

Chick Hawks, a veteran of nearly thirty years of service with the Virginia Commission of Game and Inland Fisheries, is seen here in Waverly, Virginia, one of the many communities located in the county of Sussex, to which he is assigned.



Growing Up Outdoors

By Sandy Coleman

INDIANS!

"Sure is cold out there," Matt said to Amy as they watched the falling snow.

"I know. It's been like that for days, it seems," Amy sighed as she picked up her coloring book. "It's even too cold to play outside for long," she continued.

"Well, we should count ourselves very lucky that we have a warm place to stay, Mom says. Maybe she's right. I sure would hate to have to spend the night out in that awful cold," Matt said in an attempt to cheer up his unhappy little sister.

"I wonder how the Indians were able to live with just teepees. It really must have been cold," Amy said, brightening as she thought of one of her favorite subjects -- Indians!

"Well, I think it was just the Western Indians who lived in teepees," Matt smilingly corrected his little sister.

"That's what the Indians on television lived in!" Amy protested vigorously.

"Well, the Indians that you see on television are usually the Western ones. We had different tribes in Virginia. Powhatan and his daughter, Pocohontas, are two of our most famous Indians. Indians like Sitting Bull were from the part of our country that was much further west," said Matt.

"I didn't know that there was any difference," she told her big brother.

"I tell you what, Amy. I'll get a book from the library tomorrow and then we can read about Virginia Indians and how they survived."

Amy agreed enthusiastically and the next day Matt and Miss Duncan, the librarian, selected several books from the shelves.

"Thanks, Miss Duncan," Matt said as he was preparing to leave.

"I hope you find what you

wanted in those books. If not, then I will be glad to help you find some others," Miss Duncan added as Matt skipped out the door.

Later that day, Matt and Amy knew a lot more about Virginia Indians than they had the day before.

"Amy, it says here that there were several tribes that lived in Virginia. Powhatan was the chief of about six tribes that lived near Richmond in the 17th Century. He was a very important chief and ruled all of those tribes very strictly. His daughter, Pocohontas, was said to have saved the life of Captain John Smith who came over with the Jamestown settlers. Although, whether that is true or not, we don't know. John Smith wrote it in the book that he wrote about his life. Amy, are you listening?" Matt asked.

"Oh, yes. I was just thinking: how did they eat and what kind of houses did they live in?" Amy answered her older brother.

"I was getting to that! They lived in long houses covered with bark or rushes. The houses that were needed to last for a longer period of time were usually made of bark."

Amy was listening attentively, Matt noticed when he looked up. With a small sigh of satisfaction he continued.

"Deer and bear were the most important large game animals to the Indians, but deer was the most important of all. It was used as a food and as material for clothing. The Indians would hunt in large groups usually, but occasionally one Indian alone would stalk a deer. He would cover his whole body with the hide of the deer so that he could get really close. Isn't that something?" he asked.

"I'll say. What else did they eat?" Amy answered.

"Well, they ate rabbits, and beaver and otter. Wild turkey was the most important game bird. But it says they ate partridge, ducks and pigeons when they could be found. And the Indians that lived on the shore ate seafood like clams and oysters."

"I sure would have liked to have been an Indian," Amy said.

"So would I," Matt added.

The two spent the rest of the evening thinking wistfully of buckskins and deer stalking.



Illustration by Diane Grant

Wild Bounty

By MARIE B. MELLINGER

The latest fad for wild edibles could be the salvation of this country. From a "fun thing to do", knowledge of available wild foods could become necessary for basic survival. Every old field and vacant lot has bushels of food, free for the taking, and ignored because of a lack of basic common sense, or prejudice against trying anything new, or different from the canned frozen or fresh supermarket food.

The combined evils of inflation, and over population will inevitably lead to famine. People will die of starvation while they ignore an abundance of food free for the taking. Take drinks, for example. With at least a dozen good tasting, nourishing, wild teas, easily available, there is no excuse for not having a tea or coffee substitute. Strawberry leaves, blackberry leaves, any of the mints, yarrow, red clover blooms, white clover blooms, spicebush twigs, catnip, sweet goldenrod, all make good tasting teas, in addition to the well known sassafras. You don't have to dig sassafras roots . . . flowers or shredded twigs will also make tea. Smooth or staghorn sumac grows over much of eastern United States, and the red berries make a vitamin rich lemonade. New Jersey tea (*Ceanothus*) a common shrub of dry, rocky areas, yields a tea from its dried leaves. This was used by Washington's troops during the winter at Valley Forge. It is said that when Martha went to visit George, she carried her reticule full of "revolutionary tea". It can be called bicentennial tea in honor of this event.

Any plant that tastes or smells like mint is safe to use. Many garden mints like spearmint and peppermint have naturalized and run wild. Add to these the wild mints found in all areas, and you have a whole shop full of flavorings,



Poke salad, long a country staple, is today attracting an ever growing circle of fans.

easily available. The garlic or wild onions growing in your lawn are stronger and more flavorful than garden garlic.

You can use the leaves of sheep sorrel, dock, plantain (when young), pokeweed, purslane, chickweed, pigweed, and dandelion. Not only do many of the wild weeds taste delicious when properly prepared, they have an extremely high nutritional value. Pigweed, or wild amaranth, has more protein, iron, vitamin A and vitamin C, than beet greens, collards, or spinach. Dock greens have more vitamin A than carrots. The common chickweed, found everywhere in every month of the year (even under snow), is loaded with copper and extremely rich in vitamin C, and could help the diets of many undernourished people. Lamb's quarters (*Chenopodium album*) is richer in iron, protein, and vitamin B2 than

cabbage or spinach. Seeds of this and of the amaranths can also be used for cooked cereals or breads. Poke can be gathered every four days to a week all season, and one vacant lot can supply enough poke greens for an entire neighborhood. Be sure not to use anything but the new shoots and very young leaves, and cook them several times, pouring the water off each time. Dandelions could save the world from scurvy and vitamin deficiency, they are so rich in vitamins and iron. Every lawn can be a potential source of dandelion greens.

The native Amerindian marked midsummer as "the season when berries are ripe". They knew the value of gathering and drying wild berries and fruits for future use. We let tons of delicious wild fruits go to waste every season. Millions of dollars' worth of blueberries, blackberries, elderberries, wild cherries,

plums and grapes can be gathered the fall, and you have a constant annually. Start with strawberries and mulberries in the spring and end with ground-cherries, persimmons, and wild crabapples in the fall. Persimmons are rich in sugar, when fully ripe, and can be a good substitute for bananas or dates.

Black Walnut trees produce food for both man and wildlife. Though hard to remove from the hard shell, the walnut meat is worth the effort.



Rose hips, haws, and barberries, all contain as much vitamin C as citrus fruits, and are readily available. Sunflower seeds are 25% protein. All of the nuts, black walnuts, butternuts, hazelnuts, hickory nuts, beech nuts, are a good source of protein. Other wild edibles include tubers of cat-tail, arrow-head, ground nut, and the asiatic yam vine that is taking over the country. Even roots of smilax and kudzu are rich in starch. Some one needs to invent a kudzuburger.

In time to come, we will need to harvest the abundance of wild fruits and nuts; we will learn to use the wayside weeds, we might even encourage these to grow! As Thoreau wrote, "the fields and hills are a table constantly spread."



Photo by Denis Dale

Cattails are found in many wet places and their starchy roots are said to be delicious both raw and cooked. wild foodgatherers find persimmons much to their liking (below).

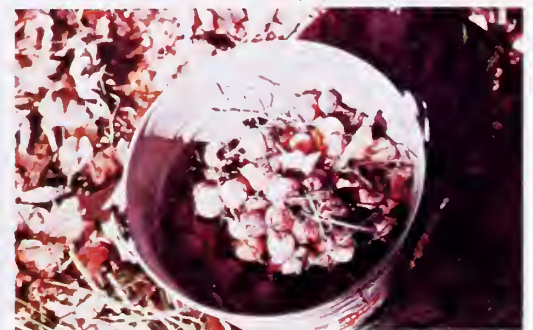


Photo by H. Gillam

THE CANADA GOOSE



No bird seems to excite the imagination like the Canada Goose. A flock of them, moving across the sky in a thin, wavering "V" sets the mind to wondering and brings forth a flood of memories.

To many here in the south, the fall flight of geese is the very spirit of autumn. The earliest leaves have turned when first we see them, an attenuated wedge traced across the sky. From their height, the bugling calls come to earth as but a whisper, barely audible.

The geese are back! And from what wild and far off places? The barren tundra near the Arctic Circle? A spruce-edged pond near the tree-line? Or a glacier-fed lake in the Yukon?

Conversely, to people who live in the north, the return of the geese in the spring must be equally as soul-stirring. When the geese arrive, then surely there is open water somewhere. Winter's firm hold on the landscape is loosening. The long months of snow and cold are nearly ended.

To many others, the Canada goose is more than harbinger of the seasons. Its size, strength and sagacity are a source of wonder and admiration and have prompted many a tale by the fireside.

One of the world's largest waterfowl, the Canada goose ranks second only to the swans among North American species. Large individuals may weigh up to 14 pounds and most measure 35 to 40 inches in

length. Hence, they can be formidable adversaries when defending nest and eggs or young. Audubon tells of a goose striking him so hard that he feared for broken bones. And there is another story of an aroused gander that knocked an intruder off a horse, killing itself in the process and injuring the rider severely.

The wariness and cunning of the Canada is legendary. Readily recognizing protected areas, they return to them year after year to rest and forage. Where heavily hunted, they seek the shelter of open water or refuges in the daytime, and feed at dusk, or even at night when there is sufficient moon.

Open fields, with a wide view surrounding them, are always selected when available, and there are always sentinels stationed at vantage points. When hiding or concealment is considered the best strategy, they will lie flat, with necks outstretched, and "freeze".

The Chesapeake Bay and adjacent tidewater has been for time unknown a favored wintering territory for the Canada goose. During the last few decades, since the inception of the mechanical cornpicker, their numbers have nearly doubled. The grain left behind by the picker has provided a bountiful and ready supply of food, enticing birds to linger that formerly would have moved on.

On The Waterfront

Edited by Jim Kerrick

BUYING TIPS FOR NOVICE SAILORS

What should the novice sailor look for in his first sailboat?

Wood or fiberglass? If you're a traditionalist who feels that a wooden boat is the only kind of boat for you, then look into wooden boats. You can buy a new model or have one built for you. Whichever you choose, it'll cost more than buying a new fiberglass boat. You can also buy a used wooden boat for less than a new fiberglass, but it's advisable to get expert help from a good knowledgeable friend or marine surveyor.

Fiberglass requires less upkeep than wood, usually provides more room below in equal footage, can be repaired easily and does not rot. Ninety-five per cent of the sailboats sold are fiberglass.

Your boat should also have a self-bailing cockpit, since sailboats tend to take on water.

What about costs? A sailboat usually is sold minus the cost of sails, so always consider the price of the entire rig before deciding on how much you want to spend. The list of options you want (or need) depends on the size of the boat you select and how you intend to use it. For example, a person buying his boat for racing needs different equipment than the individual who simply wants to cruise. A person cruising on inland waters needs a different boat than the one sailing on coastal waters. The dealer can help you select what you need. Also, contact a yacht club or a racing committee member to find out what kind of equipment you'll need for the type of racing you'll be doing.

What about an auxiliary motor? Most sailboats bought are small (less than 20 feet) and don't require an

auxiliary motor. If you buy a larger boat, most likely it'll be equipped with an auxiliary gas engine (diesel engines usually cost more). You might need an auxiliary motor to maneuver in the harbor, if racing to get to the starting line and, caught in a "calm," some help to get back to shore.

BOAT FINANCING

You've finally found the boat of your choice, and now comes the trip to the bank's loan department. What kind of reception will you get in view of the money conditions today?

An interview with a local bank official revealed that you can expect to obtain bank financing for your purchase. But it may be helpful to know two conditions prevailing in the present attitudes of leading banks.

First, because many banks are conserving funds for the needs of their business customers, personal credit ratings will be looked into more closely upon applications for loans of pleasure purposes.

Secondly, large purchases, \$50,000 and up may require more

than the previous standard down payment of from 25 to 30 per cent. For boat purchases entailing lesser amounts down payments requirements remain unchanged from last year.

And, of course, the boat buyer can expect to pay the latest legal rate or interest for his financing, as with car loans and other types of financing today.

Because some banks have more restrictive attitudes than in the past, the boat buyer may have to shop for financing.

But, barring any new belt tightening moves on consumer spending in government policy, boat financing is still readily available for the 1978 boat buyer.

When buying a boat look for the following:

- stability and reputation of the manufacturer.
- resale value since boaters tend to buy bigger and better next time.
- overall appearance.
- structural integrity and methods of manufacture.
- quality of add-ons and methods used to install these.

Have fun!





Screech Owl



Saw-Whet Owl



Barred Owl



Long Eared Owl



Barn Owl



Short Eared Owl

Snowy Owl



Burrowing Owl

Great Horned Owl

